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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,510	09/30/2003	Noriaki Okazawa	Q77770	1658
65565 7590 06/06/2007 SUGHRUE-265550 2100 PENNSYLVANIA AVE. NW WASHINGTON, DC 20037-3213			EXAMINER FIDLER, SHELBY LEE	
			ART UNIT 2861	PAPER NUMBER
			MAIL DATE 06/06/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/673,510

Applicant(s)

OKAZAWA ET AL.

Examiner

Shelby Fidler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 15-21 and 23-25 is/are rejected.
- 7) ☒ Claim(s) 7, 11-14, 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/14/2007 has been entered.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8-10, 16-19, 20, and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Miura et al. (US 5604522).

#### **Regarding claims 1 and 20:**

Miura et al. disclose a liquid ejecting apparatus comprising a liquid ejecting head (col. 1, lines 7-16) comprising:

a flow passage formation section (flow path substrate 12 + nozzle plate 13) including:

a plurality of nozzle openings (nozzle openings 13a) that eject liquid therefrom

(col. 4, lines 20-24);

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a plurality of pressure generation parts (piezoelectric transducers 1) that correspond to the nozzle openings, respectively (Figs. 1 and 2);

a plurality of liquid supply passages (liquid supply passages; see Drawing A below) that supply liquid to the pressure generation parts, respectively (Fig. 2);

a plurality of partition wall parts (unreferenced partitions between ink chambers 22 in Figs. 1-3), each separating one liquid supply passage and its corresponding pressure generation part from another liquid supply passage and its corresponding pressure generation part (Fig. 1);

a sealing section (vibrating film 20) that seals the flow passage formation section (Fig. 1); and

a head case section (head frame 10) that is provided on the sealing section (Fig. 2),

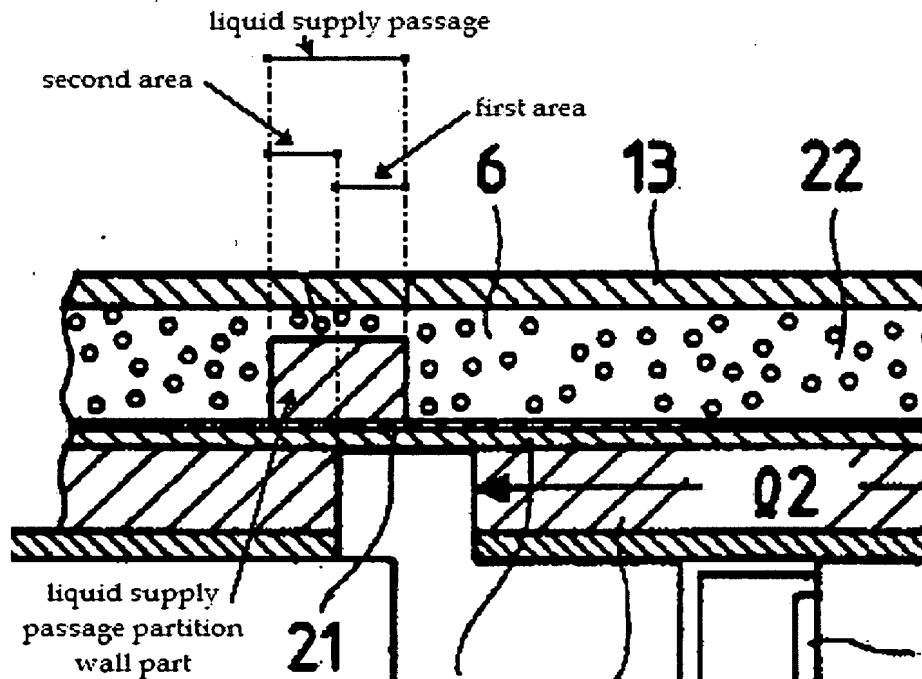
wherein the partition wall parts respectively include liquid supply passage partition wall parts (liquid supply passage partition wall parts; Drawing A) that separate adjacent liquid supply passages (Figs. 1 and 2);

wherein the sealing section seals an area of the flow passage formation section corresponding to both the liquid supply passage partition wall parts and the liquid supply passage of the flow passage formation section (Fig. 1), and the sealing section has a first area (first area; Drawing A) and a second area (second area; Drawing A) that is greater in thickness than the first area (Drawing A);

wherein both the first area and the second area are opposed to the liquid supply passage (Drawing A); and

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wherein the head case section is separated by a vacancy from the section at the first area opposed to the liquid supply passage (Drawing A and Fig. 2).



Drawing A: Figure 2 of Miura et al., edited for clarification

Regarding claims 24 and 25:

Miura et al. disclose the liquid ejecting head of claim 1, wherein

the sealing section (20) has a first part (polymeric resin film 20a + inorganic film 21) and a second part (island-like protrusions 20b + film 24) that is greater in thickness than the first part (col. 5, lines 40-46 and Fig. 2);

the first area of the sealing section is formed with the first part (Fig. 1); and

the second area of the sealing section is formed with the first part and the second part (Fig. 1).

Regarding claim 8:

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**Miura et al. also disclose that the second part (20b+24) and the first part (20a+21) are separate bodies (Fig. 2).**

**Regarding claim 9:**

**Miura et al. also disclose that the second part (20b+24) of the sealing section is comprised of a metal thin film (col. 5, lines 52-55 and col. 6, lines 11-23).**

**Regarding claim 10:**

**Miura et al. also disclose that the second part of the sealing section (20b) is comprised of a stainless steel thin film (col. 5, lines 52-55 and col. 6, lines 11-23); and**

**wherein the first part (20a) is comprised of a resin thin film (col. 5, lines 56-67).**

**Regarding claims 16 and 23:**

**Miura et al. also disclose that a plurality of first parts are formed on the sealing section corresponding to the liquid supply passages (Fig. 2).**

**Regarding claim 17:**

**Miura et al. also disclose that the sealing section includes a metal thin film (col. 5, lines 52-55 and col. 6, lines 11-23) and a resin thin film (col. 5, lines 56-67) which are overlapped (Fig. 2);**

**wherein the resin thin film (20a) is placed so as to face the flow passage formation section (Fig. 2); and**

**wherein the first part is formed of the resin thin film with the metal thin film removed (col. 5, line 50 – col. 6, line 23).**

**Regarding claim 18:**

**Miura et al. also disclose that the metal thin film is formed on the sealing section of the portions corresponding to the partition wall parts as the second part (Drawing A).**

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**Regarding claim 19:**

**Miura et al.** also disclose that an island portion (island-like protrusions 20b + film 24 that correspond to the individual piezoelectric transducers 1) is formed on each of the liquid supply passages so as to prevent a reduction in pressure in each of the pressure generation parts (Fig. 5); and

wherein the second part (20b+24) is formed on the sealing section corresponding to at least the pressure generation part side of the island portion (Fig. 5).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-6, 15, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (US 5604522) in view of Kitahara (JP 2001-277524 A).

**Regarding claim 2:**

**Miura et al.** disclose all the limitations of claim 20, as well as the limitations that the second part inside of the area where the head case section is provided on the sealing section is placed in a part of each of the liquid supply passage partition wall parts (Drawing A).

**Miura et al.** do not expressly disclose the materials by which the head case section and flow passage formation section are made, and thus does not expressly disclose that the head

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case section has an expansion coefficient that is different from that of the flow passage formation section.

However, Kitahara discloses a head case section (case 3) made of synthetic resin (paragraph 126, lines 1-2) and a flow passage formation section that is made of stainless steel (paragraph 154, line 2); therefore, the head case section has an expansion coefficient that is different from the expansion coefficient of the flow passage formation section.

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize a head case section with an expansion coefficient that is different from that of a flow passage formation section, such as taught by Kitahara, into the invention of Miura et al. The motivation for doing so, as taught by Kitahara, is so that the head case section can hold the piezoelectric transducer during expansion and contraction (paragraphs 126-127), and to provide a material that is easily etched to form the different flow passage formations (paragraphs 153-154).

**Regarding claim 3:**

Miura et al. also disclose that the second part is placed at a tip side away from the pressure generation parts in the liquid supply passage partition wall parts (Drawing A).

**Regarding claim 4:**

Miura et al. also disclose that the second part placed in the tip sides of the liquid supply passage partition wall parts is formed contiguously (Figs. 1 and 5).

**Regarding claim 5:**

Miura et al. also disclose that the second part is placed only in the tip side of the liquid supply passage partition wall parts (Drawing A).

**Regarding claim 6:**



**Miura et al. also disclose** that the sealing section has a third part (island-like protrusions 20b + film 24 that corresponds to the piezoelectric actuator 1) outside of the area where the head case section is placed (Fig. 2); and

wherein the third part is placed at a base side of the liquid supply passage partition wall parts (Fig. 2).

**Regarding claim 15:**

**Miura et al. disclose** all the limitations of claim 24, as well as the limitation that the second part of the sealing section (20b+24) is placed in the liquid supply passage partition wall part (Drawing A), to which the head case section is joined (Fig. 2), has an area smaller than an area of the corresponding liquid supply passage partition wall parts (Drawing A).

**Miura et al. do not expressly disclose** the materials by which the head case section and flow passage formation section are made, and thus does not expressly disclose that the head case section has an expansion coefficient that is different from that of the flow passage formation section.

**However, Kitahara discloses** a head case section (case 3) made of synthetic resin (paragraph 126, lines 1-2) and a flow passage formation section that is made of stainless steel (paragraph 154, line 2); therefore, the head case section has an expansion coefficient that is different from the expansion coefficient of the flow passage formation section.

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize a head case section with an expansion coefficient that is different from that of a flow passage formation section, such as taught by Kitahara, into the invention of Miura et al. The motivation for doing so, as taught by Kitahara, is so that the head case section can hold the piezoelectric transducer during expansion and contraction (paragraphs 126-127), and

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to provide a material that is easily etched to form the different flow passage formations (paragraphs 153-154).

**Regarding claim 21:**

Miura et al. disclose all the limitations of claim 25, as well as the limitation that the second part (20b+24) inside of the area where the head case section (10) is provided on the sealing section is placed in a part of the liquid supply passage partition wall parts (Drawing A).

Miura et al. do not expressly disclose the materials by which the head case section and flow passage formation section are made, and thus does not expressly disclose that the head case section has an expansion coefficient that is different from that of the flow passage formation section.

However, Kitahara discloses a head case section (case 3) made of synthetic resin (paragraph 126, lines 1-2) and a flow passage formation section that is made of stainless steel (paragraph 154, line 2); therefore, the head case section has an expansion coefficient that is different from the expansion coefficient of the flow passage formation section.

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize a head case section with an expansion coefficient that is different from that of a flow passage formation section, such as taught by Kitahara, into the invention of Miura et al. The motivation for doing so, as taught by Kitahara, is so that the head case section can hold the piezoelectric transducer during expansion and contraction (paragraphs 126-127), and to provide a material that is easily etched to form the different flow passage formations (paragraphs 153-154).

*Allowable Subject Matter*

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Claims 7, 11-14, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Please see Office Action dated 12/8/2006 concerning reasons for indicating allowable subject matter.

*Response to Arguments*

Applicant's arguments with respect to claims 1 and 20 have been considered but are moot in view of the new ground(s) of rejection. Please see the above rejection based on the disclosure provided by Miura et al. which teaches that a head case section is separated by a vacancy from the sealing section at the first opposed to the liquid supply passage.

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*Communication with the USPTO*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelby Fidler whose telephone number is (571) 272-8455. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Shelby L. Fidler* 5/31/2007

Shelby Fidler  
Patent Examiner  
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**MATTHEW LUU**  
**SUPERVISORY PATENT EXAMINER**